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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,971	01/06/2006	Jean-Francois Stumbe	283556US0PCT	7326

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
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EXAMINER

MAKSYMONKO, JOHN M

ART UNIT	PAPER NUMBER
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4145

NOTIFICATION DATE	DELIVERY MODE
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02/27/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/563,971	Applicant(s) STUMBE ET AL.	
	Examiner JOHN M. MAKSYMOKO	Art Unit 4145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060629</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-9, and 11-12 rejected under 35 U.S.C. 102(b) as being anticipated by Park et al. (Cationic Hyperbranched Poly(Amino Ester): A Novel Class of DNA Condensing Molecule with Cationic Surface, Biodegradable Three-Dimensional Structure, and Tertiary Amine Groups in the Interior, *J. Am. Chem. Soc.* **2001**, 123, 2460-2461).

Regarding claim 1, Park discloses a process for preparing hyperbranched polymers comprising reacting compounds of the formula I shown where X is sulfur or oxygen, R¹ and R³ are identical or different and are hydrogen, C₁-C₆ alkyl, C₃-C₁₂ cycloalkyl or C₆-C₁₄ aryl, R² and R⁴ are identical or different and are hydrogen, C₁-C₆ alkyl, C₃-C₁₂ cycloalkyl, C₆-C₁₄ aryl, Z¹ and Z² are identical or different and are COOH or COOR⁶, the radicals R⁶ being identical or different and being C₁-C₆ alkyl, formyl or CO-C₁-C₆ alkyl, R⁵ identically or differently at each occurrence is C₁-C₆ alkyl or hydrogen, and n is an integer from 2 to 10, (Scheme 1, Monomer 1) optionally with at least one compound of the formula Ia in the presence of a catalyst (AlOPr₃: Page 1, Column 1, Last Line).

Regarding claim 2, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein R^1 and R^3 are identical (Scheme 1, Monomer 1).

Regarding claim 3, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein R^2 and R^4 are identical (Scheme 1, Monomer 1).

Regarding claim 5, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein Z^1 and Z^2 are COOR^6 (Scheme 1, Monomer 1).

Regarding claim 6, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein the radicals R^6 are each identical (Scheme 1, Monomer 1).

Regarding claim 7, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein R^1 and R^3 are identical and are methyl or hydrogen, R^2 and R^4 are identical and are each hydrogen, and Z^1 and Z^2 are each COOR^6 (Scheme 1, Monomer 1).

Regarding claim 8, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein from 0 to 1000% by weight of compound of the formula Ia are used, based on compound of the formula I. (0%: Scheme 1).

Regarding claim 9, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein the reaction is carried out in the presence of at least one polyfunctional compound (Compound 3 core, Scheme 1).

Regarding claim 11, Park discloses all of the claim limitations as set forth above. Additionally the reference discloses the process wherein the reaction is carried out in the presence of an acidic inorganic, organometallic or organic catalyst or a mixture of two or more acidic inorganic, organometallic or organic catalysts (AlOPr₃: Page 1, Column 1, Last Line).

Regarding claim 12, Park discloses a hyperbranched polymer obtained by the process according to claim 1 (Scheme 1, Compound 4)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., as applied to claim 1 above, (Cationic Hyperbranched Poly(Amino Ester): A Novel Class of DNA Condensing Molecule with Cationic Surface, Biodegradable Three-Dimensional Structure, and Tertiary Amine Groups in the Interior, *J. Am. Chem. Soc.* **2001**, 123, 2460-2461).

Regarding claim 4, Park discloses the limitations of claim 1 as set forth above. The reference does not explicitly disclose the process wherein Z^1 and Z^2 are each COOH. Because hydrolysis of the COOR⁶ (disclosed to the COOH claimed would be an obvious and, in the presence of water, unavoidable reaction, it would have been obvious to one having ordinary skill in the art at the time the invention was made to hydrolyze the monomer of Park to achieve the claimed monomer.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., as applied to claim 1 above, (Cationic Hyperbranched Poly(Amino Ester): A Novel Class of DNA Condensing Molecule with Cationic Surface, Biodegradable Three-

Dimensional Structure, and Tertiary Amine Groups in the Interior, *J. Am. Chem. Soc.* **2001**, 123, 2460-2461) in view of Frey et al. (Enzyme-Catalyzed Synthesis of Hyperbranched Aliphatic Polyesters, *Macromol. Rapid Commun.* **2002**, 23, 292-296).

Regarding claim 10, Park discloses the limitations of claim 1 as set forth above. The reference does not explicitly disclose the process wherein the reaction is carried out in the presence of at least one enzyme.

Frey teaches a method of synthesizing a large variety of hyperbranched polyesters (Page 296, Column 1, Lines 1-3) using enzymes as catalysts (Page 293, Columns 1-2, Experimental Part).

As both Park and Frey relate to methods of producing hyperbranched polyesters, it would have been obvious to one having ordinary skill in the art at the time of the invention to use the enzyme catalyst of Frey in the polymerization of Park for the purpose of synthesizing polymers that are useful for biomedical applications due to their lack of heavy metals (Frey, Page 296, Column 1, Lines 8-12).

8. Claims 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., as applied to claims 1 and 12 above, (Cationic Hyperbranched Poly(Amino Ester): A Novel Class of DNA Condensing Molecule with Cationic Surface, Biodegradable Three-Dimensional Structure, and Tertiary Amine Groups in the Interior, *J. Am. Chem. Soc.* **2001**, 123, 2460-2461), in view of Bruchmann et al (WO02/36695 using US 7,151,153 as a translation).

Regarding claims 13 and 14, Park discloses the limitations of claim 12 as set forth above. The reference does not explicitly disclose the process comprising reacting the hyperbranched polymer with a hydrophilic compound.

Bruchmann teaches a product and process of preparing hyperbranched polymers using monomers and catalyst addition further comprising reacting the hyperbranched polymer with a hydrophilic compound (Column 5, Lines 33-34)

As both Bruchmann and Park teach a method of producing, and a hyperbranched polymer product, it would have been obvious to one having ordinary skill in the art at the time of the invention to use the step of reacting the hydrophilic compounds of Bruchmann with the hyperbranched polymer of Park for the purpose of adapting the polymers for use in printing ink (Bruchmann: Column 5, Lines 33-35).

Regarding claims 15 and 16, Park discloses the limitations of claim 12 as set forth above. The reference does not explicitly disclose the process comprising reacting the hyperbranched polymer with at least one hydrophobic alcohol.

Bruchmann teaches a product and process of preparing hyperbranched polymers using monomers and catalyst addition and further comprising reacting the hyperbranched polymer with at least one hydrophobic alcohol (Column 5, Lines 55-58).

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the step of reacting the hydrophobic alcohol of Bruchmann with the hyperbranched polymer of Park for the purpose of adapting the polymers for use in printing ink (Bruchmann: Column 5, Lines 33-35).

Regarding claims 17 and 18, Park discloses the limitations of claim 12 as set forth above. The reference does not explicitly disclose the process comprising reacting the hyperbranched polymer with at least one alcohol or amine which has an ethylenically unsaturated double bond.

Bruchmann teaches a product and process of preparing hyperbranched polymers using monomers and catalyst addition further comprising reacting the hyperbranched polymer with at least one alcohol or amine which has an ethylenically unsaturated double bond (Column 6, Lines 18-25).

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the step of reacting the with at least one alcohol or amine which has an ethylenically unsaturated double bond of Bruchmann with the hyperbranched polymer of Park for the purpose using in inks for offset of letterpress printing (Column 6, Lines 16-18).

Regarding claims 19-21, Park discloses the limitations of claim 12 as set forth above. Additionally, the reference teaches a hyperbranched polymer having the functional groups -OH , -SH , -COOH , and -COOR . The reference does not explicitly disclose a method for producing a formulation wherein said formulation is an adhesive, a coating, a foam, a covering, a printing ink or a varnish, comprising adding the hyperbranched polymer according to claim 12 to said formulation nor a printing ink or print varnish formulation using said hyperbranched polymer.

Bruchmann teaches a method for producing a formulation wherein said formulation is an adhesive, a coating, a foam, a covering, a printing ink or a varnish,

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comprising adding a hyperbranched polymer to said formulation and a printing ink and print varnish formulation using said hyperbranched polymer due to the suitability of the functional groups –OH, –SH, –COOH, and –COOR for the task (Column 5, Lines 27-47).

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the hyperbranched polymer of Park as a printing ink or print varnish, as taught by Bruchmann, for the purpose of capitalizing on their exposed functional groups and their reactivity to hydrophobic or hydrophilic reactants as needed for each printing application (Bruchmann: Column 5, Lines 27-47).

Regarding claim 22, modified Park discloses the limitations of claim 17 as set forth above. As printing varnishes and printing inks are generally identical except the varnishes lack colorant (Bruchmann: Column 1, Lines 34-36) and the use of hyperbranched polymers modified with ethyleneically unsaturated alcohols as printing inks are taught (Bruchmann: Column 6, Lines 16-21) it would have been obvious to one having ordinary skill in the art at the time of the invention to use the modified hyperbranched polymers of modified Park as a printing varnish.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN M. MAKSYMONKO whose telephone number is (571)270-3239. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, and alternating Fridays 7:30AM-4:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gwendolyn Blackwell/
Primary Examiner, Art Unit 1794

JM
12 February 2008